THE Z-88 by MIKE FINK

HI, ALL YOU Z-88 USERS AND POTENTIAL OWNERS! THIS MONTHLY COLUMN OFFERS: HINTS, AIDS, AND OPERATING KNOWLEDGE THAT IS NOT AVAILABLE EASILY (OR AT ALL), FROM CAMBRIDGE. I SHALL TRY TO OFFER MOST TIPS FREELY; ALTHOUGH YOU CAN BUY MANUALS A AND/OR B FROM DOMINO CUBES.

(MANUAL A COMES FREE WITH THE PURCHASE OF THE Z-88 FROM ME.)

HINTS AND TIPS

1. DO NOT LEAVE THE PRINTER CABLE PLUGGED INTO THE PRINTER, EVEN WHEN THE POWER AND/OR THE COMPUTER IS TURNED OFF. THIS WILL QUICKLY DRAIN THE BATTERIES.
2. ERROR MESSAGES DO NOT AUTOMATICALLY TURN OFF.
3. DOUBLE WIDTH PRINTING IS EASILY AVAILABLE, NOT ONLY IN *PIPEDEREAM*, BUT IN *BASIC*!! (SEE MANUAL A)
4. EDITING *BASIC* PROGRAMS IS EASY IF YOU SEND IT TO *PIPEDREAM*. SEE PROGRAM AT THE END OF THIS COLUMN.
5. TRANSLATED CHARACTERS IN YOUR ACTIVATED PRINTER EDITOR CAN CAUSE AN IMPROPER PRINTOUT OF *LIST* IN BASIC IF YOU HAVE TRANSLATED A CHARACTER USED IN THE PROGRAM LIST. IT WILL PRINT THE CHR. YOU TRANSLATED TO, NOT THE CHR. YOU TYPED.
6. A FREE LOTTO PROGRAM, (DESIGNED BY ME) IS GIVEN TO MY Z-88 PURCHASERS. PLUS MAYBE SOME OTHER FREEBIES.
7. CHANGE PAGE LENGTH TO ZERO (ON THE PIPEDREAM OPTIONS SCREEN), TO SAVE PAPER WHEN YOU TEST A TEXT PRINTOUT THAT IS LESS THAN A FULL PAGE, OR IF YOU PRINT A SMALL BLOCK.
8. EXTENDED SEQUENCE (NO.3), GIVES FAINT, UNREADABLE SCREEN LINES EXCEPT FOR THE CURSOR LINE.

IF YOU COME ACROSS ANY GOOD TRICKS, OR KNOWLEDGE OF THINGS TO AVOID, OR ANY QUESTIONS; PLEASE SEND THEM TO "DOMINO CUBES" SO THAT I CAN SHARE THEM IN MY COLUMN.

THANKS
MIKE FINK

THE FOLLOWING IS COPIED FROM CAMBRIDGE NEWS NOTES:

BEGIN WRITING YOUR BASIC PROGRAM IN PIPEDREAM AS IF IT WERE A DOCUMENT. PLACE THE TWO CHARACTERS "#B" ON THE FIRST LINE, THE TWO CHARACTERS ".J" ON THE SECOND LINE, AND START TYPING YOUR PROGRAM BEGINNING ON THE THIRD LINE. WHEN YOU ARE READY TO RUN THE PROGRAM, SAVE THE PROGRAM AS TEXT USING "◆FS". MAKE SURE YOU CHANGE THE BOTTOM NO TO A YES OR THE FILE WILL NOT BE SAVED AS TEXT. THEN TYPE "■F◆EX" FOLLOWED BY THE SAME NAME YOU JUST USED TO SAVE THE PROGRAM IN PIPEDREAM. THIS WILL LOAD IT INTO BASIC. FROM THIS POINT ON, REMEMBER TO ALWAYS GO BACK TO PIPEDREAM TO MAKE CHANGES.

IF YOU HAVE A PROGRAM YOU WROTE USING BBC BASIC, THEN YOU MUST COPY IT OVER TO PIPEDREAM. THIS IS DONE BY LISTING THE PROGRAM IN A SPECIAL WAY IN BASIC. IN BASIC, LIST THE PROGRAM BY TYPING "LIST■+S" AND PRESSING ENTER. AFTER IT IS LISTED,TYPE "■-S". THIS SAVES THE PROGRAM AS TEXT IN THE FILE ":RAM.-/S.SGN". TO RETRIEVE THE PROGRAM IN PIPEDREAM, LOAD THE FILE ":RAM.-/S.SGN" AS TEXT (MAKE SURE THE BOTTOM NO IS CHANGED TO YES). ONCE IN PIPEDREAM, THE LAST LINE OF THE FILE BE BLANK. INSERT ANOTHER BLANK LINE AT THE TOP OF THE FILE BY GOING TO ROW ONE AND TYPING "◆N". ON THESE TWO BLANK LINES PLACE THE "#B" AND ".J" AS DESCRIBED ABOVE AND YOU ARE READY TO USE PIPEDREAM TO EDIT YOUR BASIC PROGRAM.

(scanned by P Holmgren)

MANUAL "A" by MIKE FINK (C)1988

THIS MANUAL IS WRITTEN TO ALLOW PEOPLE WHO KNOW NOTHING ABOUT COMPUTERS, BUT WHO CAN READ AND UNDERSTAND ENGLISH, TO SIT DOWN AND USE AND ENJOY THIS REMARKABLE COMPUTER AT ITS FIRST LEVEL OF VERSATILITY...

AFTER USING THE Z-88 FOR A SHORT TIME, YOU WILL BE ANXIOUS TO MASTER ALL THE VARIOUS AND WONDERFUL THINGS IT CAN DO FOR YOU. THIS WILL REQUIRE READING THE INTERMEDIATE OR ADVANCED MANUAL.

MANUAL A-PART 1 ◆ PIPEDREAM ◆

THERE ARE TWO KEYS ON THE KEYBOARD THAT ARE DESIGNS, ONE IS A SQUARE THE OTHER IS A DIAMOND. IN THIS MANUAL, I WILL USE THE SHAPES TO DENOTE THE KEYS; ie; ◆ = DIAMOND and ■ = SQUARE.

1. INSTAL 4 ALKALINE 'AA' BATTERIES AS SHOWN ON PAGE 7 OF CAMBRIDGE'S MANUAL, THEN INSTRUCTION 2 OF THIS MANUAL.
2. FIND A PAPER CLIP (METAL) AND UNBEND IT TO ALLOW YOU TO ENTER THE SMALL HOLE ON THE LEFT SIDE OF THE Z-88, BETWEEN THE BIG HOLE AND THE ESCAPE KEY. THE SMALL HOLE IS CLOSER TO THE BIG HOLE. THE BIG HOLE IS WHERE THE AC ADAPTER IS PUT IN WHEN YOU WISH TO SAVE THE BATTERIES. USE A STIFF SMALL ROD, OR THE BENT PAPER CLIP, TO ENTER THE SMALL HOLE AND PUSH THE RESET TWICE TO ACTIVATE THE COMPUTER. SEE PAGE 21 IF RESET IS REQUIRED IN THE FUTURE. (REF. P.187)
3. BETWEEN *TAB* & *ESC* KEYS ON THE LEFT SIDE, IS A ROTATING SWITCH TO CONTROL SCREEN CONTRAST. ROTATE IT CLOCKWISE UNTIL IT STOPS.
4. PRESS BOTH *SHIFT* KEYS AT THE SAME TIME, TURNING SCREEN AND COMPUTER ON ---REPEAT TO TURN OFF.
5. GRADUALLY ROTATE SWITCH COUNTER-CLOCKWISE, UNTIL SCREEN IS CLEAREST.
6. THE COMPUTER WILL AUTOMATICALLY TURN ITSELF OFF IN 5 MINUTES IF NO ACTIVITY IS SENSED. IF THIS HAPPENS, TURN IT ON. (SEE ITEM 4). YOU CAN CHANGE THE 5 MINUTES BY MODIFYING THE *PANEL*, SEE ITEM 18.
7. PRESS THE KEY WITH THE SQUARE AND T. SEE CLOCK INSTRUCTIONS PAGES 70 AND 71. THE *CLOCK* IS THE ONLY APPLICATION THAT DOES NOT TURN ITSELF OFF, WEARING OUT THE BATTERY!! SEE ITEM 27.
8. TAKE A DEEP BREATH; WE ARE ABOUT TO LEARN HOW TO USE AND ENJOY THE FANTASTIC Z-88 !!!!
9. PRESS *INDEX* KEY, THE SCREEN SHOULD SHOW TWO COLUMNS, THE LEFT ONE IS LABELLED *APPLICATIONS*, THE RIGHT ONE *SUSPENDED ACTIVITIES*.
10. UNDER *APPLICATIONS*, ONE OF THE CATEGORIES IS COVERED WITH AN INVERSE COLORING CALLED 'A HIGHLIGHT' AND IS MOVABLE left, right, up or down BY THE left, right, up or down ARROWS AT THE LOWER RIGHT OF KEYBOARD.
11. THE LIST OF APPLICATIONS SHOWS THE FUNCTIONS THAT ARE AVAILABLE. MORE CAN BE ADDED. (SEE XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX)
12. PRESSING *ENTER* WILL TAKE YOU TO THE HI-LITED APPLICATION. THERE ARE OTHER WAYS TO REACH EACH APPLICATION. YOU CAN PRESS THE SQUARE KEY AND THE APPROPRIATE LETTER, OR YOU CAN HI-LITE THE APPLICATION IF IT IS IN *SUSPENDED ACTIVITIES*, THEN PRESS ENTER.
13. CHOOSE *PIPEDREAM* TO USE AS OUR FIRST EXAMPLE. (SEE ITEM 12). *PIPEDREAM* IS A WORD PROCESSING FUNCTION. IT IS ALSO A BLANK PAGE FOR YOU TO TYPE ON-----USING THE Z-88 AS THE WORLDS BEST AND FASTEST AND EASIEST TYPEWRITER. *PIPEDREAM* CAN BE USED FOR MANY OTHER FUNCTIONS. SEE MANUAL B. IF YOU DO NOT GET A BLANK PAGE; SEE ITEM 15.

14. EACH PRINTER CABLE HAS A NINE PIN END,TO PLUG INTO THE RIGHT SIDE OF THE COMPUTER. THE OTHER END HAS TO MATCH THE PARALLEL OR SERIAL PRINTER YOU ARE USING. (SEE YOUR PRINTER MANUAL). CONNECT BOTH ENDS OF THE RIGHT CABLE. NOT HAVING A PRINTER WON'T STOP YOU FROM USING THE COMPUTER, JUST FROM PRINTING ON PAPER.
15. IF YOU HAVE LOADED *PIPEDREAM* FROM THE *INDEX*, THE SCREEN SHOULD BE A BLANK PAGE FOR YOU TO TYPE UPON....JUST BELOW THE SCREEN IS POSTED A LIST OF ACTIONS YOU MAY APPLY TO THE TYPING TO ALLOW YOU TO DO THINGS NO TYPEWRITER CAN DO. MOST OF THEM ARE OBVIOUS, BUT THE *SHIFT DEL* DELETES THE CHARACTER under THE CURSOR, WHILE THE *DEL* KEY DELETES THE CHARACTER TO THE LEFT OF THE CURSOR. IF YOU DO NOT GET A BLANK PAGE, YOU HAVE USED ■ P AND SHOULD BEGIN AGAIN AT ITEM 9.
16. BEGIN TYPING,THE COMPUTER WILL AUTOMATICALLY BEGIN THE NEXT LINE FOR YOU WHEN IT REACHES THE ARROW NEXT TO THE LETTER F.
17. THIS ARROW, DENOTING THE END OF THE LINE, IS MOVABLE LEFT OR RIGHT. SEE LIST BELOW SCREEN, OR P.113.
18. THE KEYBOARD COMES SET FOR SILENCE, SO IT IS HARD FOR SOME PEOPLE TO KNOW IF A KEY HAS BEEN PRESSED, BUT YOU CAN ADD A KEY-CLICK. PRESS *SQUARE* AND S TO REACH *PANEL*. THE SCREEN WILL SHOW YOU THE PANEL CHOICES THAT CAN BE MODIFIED AND THE MENUS, ie, LISTS OF THINGS YOU CAN DO - TO AND WITH EACH APPLICATION. IF YOU WANT THE KEY TO CLICK, MOVE THE CURSOR USING THE ARROWS, TO THE N (FOR NO) NEXT TO *KEYCLICK* THEN PRESS Y (FOR YES). THIS MODIFICATION OF THE *PANEL* WILL NOT BE NOTICED BY THE COMPUTER, EVEN IF YOU GO TO *FILES* IN THE *MENU* AND SAVE IT WITH A NAME. TO ACTIVATE THIS OR ANY OTHER *PANEL* THAT IS ON THE SCREEN, YOU MUST PRESS ENTER.
19. THE *MENU* APPEARS AT THE LEFT OF THE SCREEN AFTER AN *APPLICATION* IS CHOSEN, WITHOUT A HI-LITE. PRESSING THE *MENU* KEY MOVES THE HI-LITE TO YOUR CHOICE. IF YOU ARE WORKING ON A SCREEN AND GO TO SOME OTHER APPLICATION YOUR TEXT IS AUTOMATICALLY SAVED IN TEMPORARY STORAGE, CALLED *SUSPENDED ACTIVITIES*. IT IS RETRIEVABLE BY MOVING THE HI-LITE TO IT AND PRESSING ENTER. IF THE SCREEN DOES NOT SHOW THE TEXT, IT WILL SHOW THE *OPTIONS* SCREEN FOR THAT TEXT. JUST PRESS *ESC*.
20. IF YOU REACH *OPTIONS* VIA *MENU*, THE SCREEN WILL BE BLANK EXCEPT FOR THE ONE HI-LITE LINE. PRESS ENTER TO GET FULL SCREEN. (REF.PP38,118) YOU CAN ALSO GO THERE DIRECTLY FROM ANYWHERE WITH ♦ O.
21. TO SAVE A TEXT TO A MORE PERMANENT PLACE YOU MUST GIVE IT A NAME BY: *MENU* TO *FILES* THEN MOVE HI-LITE TO SAVE, ENTER, THEN TYPE NAME. ((RULES FOR ACCEPTABLE NAMES -- SEE PAGES 76 AND 194)). THE TEXT IS NOW IN THE *FILER* AND IS RETRIEVABLE BY ■ P, *FILES*, THEN *LOAD* AND TYPE NAME-EXACTLY! THEN ENTER. (UPPER OR LOWER CASE NOT CRITICAL).
22. ANOTHER WAY TO LOAD A NAMED AND SAVED FILE, THAT ELIMINATES THE CHANCE OF TYPING WRONG, OR MAYBE YOU CAN'T REMEMBER THE NAME; IS TO GO TO THE *APPLICATION*, PRESS *MENU* UNTIL *FILES*, USE ARROWS UNTIL HI-LITE IS ON *LOAD*,THEN ENTER. THE CURSOR WILL BE BLINKING REQUESTING A NAME TO BE PUT IN. NOW IS YOUR CHANCE TO TYPE THE WRONG NAME, OR IF YOU WISH, CONTINUE ON AN ERRORLESS PATH---WHICH IS *INDEX*, *ARROWS* TO *FILER*, THEN ENTER. MOVE *HI-LITE* TO THE FILE YOU WANT,THEN ENTER ---- WHICH PUTS A LITTLE ARROW MARK TO THE LEFT OF THE NAME. PRESS *ESC* AND THE BLINKETY BLINK CURSOR NOW HAS ITS FILENAME! NOW PRESS ENTER AND YOUR FILE WILL BE LOADED. ANY FILE LOADED IS A COPY OF THE ORIGINAL AND CAN BE MODIFIED, OR DESTROYED WITHOUT AFFECTING THE ORIGINAL. IN ORDER TO CHANGE THE ORIGINAL, YOU MUST RE-SAVE IT AFTER CHANGES. HERE AGAIN ARE THE LOADING STEPS IN GRAPHIC FORM....

■ P-->MENU-->FILES-->LOAD-->INDEX-->FILER-->ENTER-->ARROWS-->NAME-->ENTER-->ESC-->ENTER. THE SAME WOULD HOLD TRUE FOR ■ D.

23. IF YOUR FILE WAS SAVED IN THE *FILER*, AND IS ALSO IN *SUSPENDED ACTIVITIES*, YOU CAN DESTROY OR ERASE THE FILE IN ONE PLACE, WITHOUT AFFECTING THE OTHER. (REF. KILL P.18; ERASE P.79)
24. THE ONLY *APPLICATIONS* THAT REACH *SUSPENDED ACTIVITIES* ARE *BASIC*, *PIPEDREAM*, *DIARY*, *PRINTER EDITOR* AND *TERMINAL*. *BASIC* IS LOADED DIFFERENTLY. SEE MANUAL A5.
25. IF YOU HAVE THE PRINTER CONNECTED AND THE PAPER LOADED, HERE IS HOW TO PRINT. FIRST *MENU* TO THE *OPTIONS* SCREEN, PRESS ENTER, OR ♦ O, CHANGE *PAGE LENGTH* FROM 66 TO 0. THIS WILL SAVE PAPER IF YOU ARE TYPING LESS THAN A FULL PAGE. PRESS *ESC* TO GET BACK TO THE TEXT. PRESS ♦ PO, (SEQUENTIALLY OR TOGETHER)..IGNORE SCREEN PROMPTS, PRESS ENTER. WHILE PRINTER IS PRINTING THE KEYBOARD IS DEAD EXCEPT FOR THE *ESC* KEY, WHICH, IF USED, CAN STOP THE PRINTING BEFORE THE END.
26. THERE ARE MORE SOPHISTICATED WAYS TO USE PIPEDREAM, BUT THIS MANUAL WILL ONLY ADDRESS THE FIRST LEVEL.

MANUAL A-PART 1 ♦ PIPEDREAM ♦

MANUAL A-PART 1a ♦ SPREADSHEET ♦

1. THE INSTRUCTIONS FOR USING THE SPREADSHEET ASPECT OF *PIPEDREAM*, ARE APTLY COVERED IN THE CAMBRIDGE MANUAL, NOW THAT YOU UNDERSTAND MY INSTRUCTIONS IN PART 1. SEE PP.48-56 AND 85-106
2. IT BEHOOVES ONE TO PRACTICE USING THE COMMANDS POSTED BENEATH THE SCREEN BEFORE STARTING THE SPREADSHEET!
3. I WILL UPDATE THIS SECTION IF NECESSARY AS I SEE FIT.

1. THE *DIARY* CONSISTS OF ONE PAGE, 145,920 CHARACTERS LONG. IT CAN BE DIVIDED, MARKED, OR SEGMENTED INTO AS MANY DATES AS MEMORY ALLOWS. EACH DAY THAT IS CALLED UPON, EVEN IF NO TYPING OCCURS, IS NOTED IN THE DIARY AND THE CALENDAR, AND PRINTED ON THE PAPER! UNREMOVABLE.
2. HERE ARE SEVERAL WAYS TO ENTER THE DIARY:
   A. INDEX-->ARROW-->DIARY, ENTER.
   B. ■ D
   C. ■ C, ARROW-->MARKED DATE, ESCAPE
   D. ■ C, ARROW-->LOOK FOR DATE, CHOOSE DATE, ESCAPE
3. 2A GIVES BLANK PAGE TO TYPE ON. 2B, THE SAME. 2C GIVES THAT FILE IF MARKED DATE EXISTS. 2D GIVES THAT FILE.
4. WHEN YOU ARE DONE WITH AN ENTRY, IF YOU GO ELSEWHERE, THE FILE WILL BE IN SUSP. ACT. UNTIL YOU KILL IT. TO KILL OR ERASE A SUSP. ACT., YOU: ♦ *KILL* THE HI LITE. THIS WILL <u>KILL</u> ALL DIARY FILES EXCEPT THE ONES IN *FILER*.
5. TO GET A FILE IN THE *FILER*, MENU-->FILES, ENTER-->ARROW-->SAVE, ENTER TYPE NAME (SEE LEGAL NAMES P.194), ENTER.
6. TO RETRIEVE FILE FROM *FILER*, ■ D-->MENU-->FILES-->ARROW-->LOAD--> ENTER--->INDEX--->ARROW--->FILER, ENTER--->ARROW--->FILE NAME, ENTER (TO MAKE MARK), ESCAPE. SCREEN WILL SHOW PAGE FOR THE DATE AT THE RIGHT, NOT NECESSARILY THE DATE YOU LOADED! TO GET YOUR FILE YOU CAN:
   A. MENU-->BLOCKS-->ARROW-->SEARCH-->TYPE STENCIL. (SEE ITEM 7)
   B. MENU-->CURSOR-->ARROW-->1st ACTIVE DAY-->NEXT ACTIVE DAY-->ETC...
   C. ■ C-->ARROW-->MARKED DATES-->ESCAPE.
7. THE SEARCH COMMAND IN DIARY IS OF THE **STENCIL** TYPE. ie, A STENCIL (SEARCH STRING), MADE BY YOU, MUST MATCH <u>EXACTLY</u> WHEN PASSED OVER THE TEXT. A FULL AND COMPLETE WORD IS NOT REQUIRED.
   EXAMPLE 1. TO FIND ALL PHONE NOS. BEGINNING WITH 212, JUST LET THE SEARCH STRING = 212. THIS WILL ALSO PICK UP AN ADDRESS LIKE 42127 ELM ST. TO MINIMIZE THIS,THE STENCIL SHOULD'VE BEEN 212 WITH A BLANK SPACE BEFORE AND AFTER IT!! NOW IT WILL PROBABLY ONLY FIND PHONE NOS.
   EXAMPLE 2. YOU ARE LOOKING FOR *MR. WZYNSKI* OR WZNYSKI OR WYZNISKI. NOT SURE WHICH SPELLING? LOOK FOR <u>SKI</u> AND IT WILL FIND ALL THE WORDS WITH SKI IN THEM. FOR MORE SOPHISTICATED SEARCHES, SEE PP. 44,58,91,144.

MANUAL A-PART 3 — ♣ PRINTER EDITOR ♣

1. TO REACH THE PRINTER ED. (P.E.), PRESS *INDEX, ARROW TO P.E.,ENTER, OR* DIRECTLY FROM ANYWHERE WITH ■E
2. CAMBRIDGE'S MANUAL IS OF LITTLE USE IN DESCRIBING HOW TO MODIFY THE PRINTER EDITOR, (P.E.); WHICH IS WHAT STARTED ME WRITING THIS MANUAL! FORTUNATELY, MY EXPERIENCE WITH LOGIC AND DEDUCTION, PLUS RIDICULOUS PERSEVERANCE, ALLOWED ME TO FIGURE OUT MOST OF THE ANSWERS. CAMBRIDGE MUST SUPPLY THE GUIDELINE RULES FOR US TO GET THE REST. THE CAPABILITIES OF THIS MACHINE ARE SO VARIED AND ENORMOUS-THAT NOT EVEN THEIR 200 PAGE MANUAL CAN COVER EVERYTHING.
3. THE P.E. CONTAINS CONTROL CODE NOS. THAT ARE SENT TO THE PRINTER TO TELL IT WHAT TO DO. MOST PRINTERS HAVE 256 CHARACTER CELLS, FILLED WITH LETTERS, NOS. AND INSTRUCTIONS ..... CELLS NUMBERED 31-->126 ARE THE SAME FOR MOST PRINTERS. THE FIRST LEVEL EXPLANATIONS NOW FOLLOW:
4. TO CHANGE THE WAY THE TYPED KEYBOARD LETTERS OR SYMBOLS LOOK; TYPE ONE OF THE 8 HI-LITE CODE NOS. AT THE BEGINNING AND END OF THE WORD, SENTENCE OR PARAGRAPH YOU WISH TO MODIFY. SEE MY CODE TABLE BELOW:

KEY INPUT	CODE EXPLANATION		SCREEN CODE NO.
♦ PU	UNDERLINE.		1
♦ PB	BOLD.		2
♦ PX	EXTENDED SEQUENCE		3
♦ PI	ITALICS.		4
♦ PL	SUBSCRIPT.	*lower half*	5
♦ PR	SUPERSCRIPT.	*upper half*	6
♦ PA	ALTERNATIVE FONT.	*condensed*	7
♦ PE	USER DEFINED. . . .		8

EXAMPLE: TO UNDERLINE A WORD, TYPE ♦ PU BEFORE AND AFTER THE WORD, THIS WILL PLACE THE NUMBER ONE ON THE SCREEN, BEFORE AND AFTER THE WORD, AFFECTING THE APPARENT WIDTH OF THE LINE. MOVING THE CURSOR AWAY FROM THAT LINE, ALLOWS YOU TO SEE HOW YOUR MODIFICATION AFFECTED THE WIDTH.

5. THEY DON'T TELL YOU, BUT IT IS POSSIBLE AND DESIRABLE TO APPLY MORE THAN ONE CODE NO. BEFORE AND AFTER EACH WORD. ***MAYBE THEY DON'T KNOW?***
6. THERE IS NO INFORMATION ANYWHERE TO EXPLAIN THE EXTENDED SEQUENCE -WHAT IT DOES OR HOW TO MODIFY IT, ALSO THE USER DEFINED. (SEE P.202).
7. IF YOU READ YOUR PRINTER MANUAL, THERE ARE CHARACTER CELL NOS.(CHR$), FROM 0-->255 THAT DO THINGS. IF YOU GO TO ■ E,-->TO *USER DEFINED*, THEN CHANGE 120 TO 87 (DOUBLE WIDTH ON MY PRINTER), BOTH PLACES. IT WILL ALLOW DOUBLE WIDTH PRINTING WHEN SURROUNDED BY CODE 8. (♦PE).
8. MY PRINTER HAS A COMMAND, TURN OFF DOUBLE STRIKE (AFTER USING CODES 8 AND/OR 4). IF I GO TO THE MIDDLE COLUMN OF THE P.E. AND CHANGE BOTH 84'S TO 72 AND GO TO THE RIGHT COLUMN (OFF AT CARRIAGE RETURN) AND MAKE BOTH 'SCRIPTS YES, THIS WILL TURN OFF THE DOUBLE STRIKE.

9. PAGE 2 OF THE P.E. IS REACHABLE BY *SHIFT* AND DOWN ARROW. IT HAS 9 PLACES TO TRANSLATE A KEYSTROKE TO PRINT ON PAPER SOMETHING THAT LOOKS DIFFERENT THAN THE KEYSTROKE YOU JUST PUT ON THE SCREEN! YOU CAN ALSO CHOOSE A CHR$ CODE NO. TO INSTITUTE SOME ACTION -LIKE RING A BELL, OR CHANGE THE LINE SPACING ETC.

EXAMPLE: THE LEFT SQUARE BRACKET TO THE RIGHT OF THE LETTER P, IS CHR$ 91 IN THE Z-88. ON PAGE 2 OF THE P.E., I TYPED UNDER COLUMN B TO CHANGE CHARACTER 91 TO 31. CHR$ 31 ON MY PRINTER IS THE SYMBOL FOR SPADES. IF I WERE TO TYPE THE LEFT SQUARE BRACKET ON THE SCREEN, IT WOULD PRINT THE SHAPE OF A SPADE ON PAPER.

10. HOW DID I KNOW THAT THE LEFT SQUARE BRACKET WAS CHR$ 91? IF YOU USE *BASIC* YOU CAN ASK THE COMPUTER TO PRINT CHR$ X, WHERE X IS ANY NO. YOU CHOOSE. SEE PART 5 OF THIS MANUAL,FOR FURTHER CLARIFICATION. I AM ABOUT TO PRINT HERE A SMALL PROGRAM I HAVE WRITTEN FOR THE *BASIC* AREA OF THE COMPUTER WHICH IS DESIGNED TO SHOW MOST OF THE IMPORTANT CHARACTERS.

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 20 FOR X=31 TO 126
 30 PRINT CHR$ 142;"   ";X;"  ";CHR$ X;
 40 NEXT
 90 FOR X=129 TO 134
100 PRINT CHR$ 142;"   ";X;"  ";CHR$ X;
110 NEXT
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11. IF THIS PROGRAM IS PUT INTO BASIC AND PRINTED OUT ON PAPER, ITS LOOK WILL DEPEND UPON WHICH P.E. IS IN FORCE. IF TRANSLATED CHARACTERS HAVE BEEN USED IN MODIFYING YOUR P.E. FOR YOUR PRINTER, AND THE EPSON DEFAULT P.E. IS LOADED AND NOT ACTIVATED, IT WILL NOT ACCEPT THOSE CHARACTERS ON THE SCREEN UNTIL THE P.E. IS ACTIVATED..(♦ FU)
12. IF YOUR P.E. IS IN FORCE WHEN THE PROGRAM IS RUN, THE TRANSLATED CHARACTERS ARE PRINTED ON PAPER NOT THE KEYSTROKE CHARACTERS.

MANUAL A - PART 5 BBC BASIC

1. *BASIC* CAN BE REACHED BY THE FOLLOWING PATHS:
   A. INDEX-->ARROWS-->BASIC, ENTER
   B. ■ B ((REF. P.155))
2. WHEN YOU ARE IN *BASIC* YOU CAN TELL THE COMPUTER TO DO ANYTHING YOU WANT IT TO DO! TO DO THIS AT THE LOWEST LEVEL, YOU JUST NEED TO LEARN A FEW TRICKS; TO WIT --
3. IF YOU TYPE A LINE NO. BEFORE GIVING THE COMPUTER A COMMAND, IT WILL STORE THAT DATA AND ALLOW IT TO BE USED AGAIN. IF YOU LEAVE OFF THE LINE NO., THE COMPUTER WILL EXECUTE YOUR COMMANDS (WHEN TOLD), BUT WILL NOT KNOW OR REMEMBER THAT IT DID IT, OR BE ABLE TO RECALL IT. IF THE COMMANDS HAVE LINE NOS., IT IS CALLED A PROGRAM. IF NOT, THEY ARE CALLED DIRECT OR IMMEDIATE COMMANDS.

   EXAMPLE 1: > PRINT "HI, COMPUTERS ARE GREAT!!" IF THE UNDERLINED STUFF IS TYPED ON THE *BASIC* SCREEN, AND ENTER IS PRESSED, THE SCREEN WILL DISPLAY WHATEVER WAS TYPED BETWEEN THE QUOTES. TO DO THIS AGAIN, YOU HAVE TO START ALL OVER-- THIS IS A DIRECT COMMAND.

   EXAMPLE 2: > 10 PRINT "HI, COMPUTERS ARE GREAT!!" IF THE UNDERLINED STUFF IS TYPED ON THE *BASIC* SCREEN, AND ENTER IS PRESSED, THE NEW LINE CAN NOW ACCEPT THE NEXT LINE NO. OR A DIRECT COMMAND. IF THE COMMAND IS RUN, THEN ENTER, THE SCREEN WILL BE IDENTICAL TO EXAMPLE 1, BUT TO REPEAT, YOU NEED ONLY TO RUN AGAIN. THIS IS A PROGRAM.

4. IF YOU GIVE MANY COMMANDS IN THE RIGHT ORDER, YOU CAN MAKE A NICE PROGRAM TO DO WONDERFUL THINGS. SEE PROGRAM PAGE 6-ITEM 10. TO HAVE THIS PRINT ON PAPER, SEE MANUAL B - PRINTING.
5. *BASIC* PROGRAMS MUST BE NAMED AND SAVED EXCEPT THAT ALL PROGRAM CHARACTERS IN BASIC MUST BE CAPITALS EXCEPT FOR TITLES AND THINGS IN QUOTES, IF NOT, THEY WILL BE IN *SUSPENDED ACTIVITIES* UNTIL KILLED.
6. THE REAL ADVANTAGE OF *BASIC*, IS THAT YOU CAN MAKE IT DO ALL KINDS OF COMPLICATED MATHEMATICAL THINGS THE *CALCULATOR* CANNOT DO.

MANUAL A-PART4 ◆ PANEL ◆

1. THE *PANEL* CAN BE REACHED BY THE FOLLOWING PATHS: ((ref. p.81))
   A. INDEX-->ARROWS-->PANEL,ENTER.
   B. ■ S
2. THE *PANEL* ALLOWS YOU TO CONTROL SOME Z-88 FUNCTIONS:

A.	AUTO REPEAT RATE	H.	PAGE MAP on/off
B.	KEYCLICK	J.	MAP SIZE--SCREEN SIZE
C.	KEYSTROKE ENTRY STYLE	K.	DATE FORMAT
D.	WHERE DATA GOES..	L.	BAUD RATE
E.	DEFAULT DIRECTORY	M.	PARITY
F.	AUTOMATIC SHUT-OFF TIME	N.	*X* ON/*X* OFF
G.	ALARM SOUND		

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ITEMS **E, L, M AND N** WILL BE DISCUSSED IN MY MANUAL B.

3. ITEMS 2 A,B,F,G,H,J AND K ARE DESCRIBED ADEQUATELY IN THEIR MANUAL. ITEMS 2 C AND D ARE DESCRIBED NEXT.....

4. ITEM 2C THE KEYSTROKE ENTERS THE SCREEN 2 WAYS: INSERT OR OVERTYPE. IF YOU ARE AT THE PANEL SCREEN, MOVE THE CURSOR UNTIL IT IS AT THE INSERT/OVERTYPE LINE, THEN TYPE I OR O ..... ONCE YOU HAVE CHOSEN YOUR STYLE, *NAME* AND *SAVE* THIS FILE, THEN PRESS ENTER TO ACTIVATE THE CHANGE.
   IF ONE OF THE FOLLOWING WERE ON THE SCREEN BEFORE CHANGING THE I/O; ((*PIPEDREAM BASIC OR DIARY*,)) THAT APPLICATION WILL KEEP THE I/O IT WAS LOADED WITH, FROM THE OLD ACTIVATED PANEL UNTIL IT IS RELOADED WITH THE NEW PANEL IN FORCE. IT IS POSSIBLE TO HAVE MANY DIFFERENT *PANELS* ON FILE.
   THE I/O CHOICE IS VISIBLE ON THE PANEL AND THE OPTIONS SCREEN FROM PIPEDREAM. IT IS ALWAYS CHANGEABLE AT ANY TIME FROM THE KEYBOARD WITH ◆ V.
5. ITEM 2D DEFAULT DEVICE :RAM.O RAM 0 MEANS..... UNLESS DIRECTED OTHERWISE, THE COMPUTER WILL *SAVE* OR SEND DATA TO THE STORAGE SPACE NOTED BY THE NOS. 1,2,3 OR - ((REF.P. 196)). THE OTHER PATHS..... :SCR.O, :PRT.O, :NUL.O, :COM.O, WILL BE EXPLAINED IN MANUAL B. IF YOU HAVE A RAM CARTRIDGE IN SLOT 1 OR 2, YOU CAN TELL THE PANEL TO TELL THE COMPUTER TO SAVE YOUR STUFF TO :RAM.1 OR 2.

MANUAL A-PART 6 ◆ THE CALENDAR ◆

1. THE *CALENDAR* (SEE PP.59,61,68) IS ONE OF THE "POPDOWNS". IT IS REACHABLE BY THE FOLLOWING PATHS::

   A. INDEX-->ARROWS-->CALENDAR, ENTER
   B. ■ C

2. THE CURSOR KEYS, (ARROWS), IN COMBINATION WITH THE *SHIFT* AND ◆ KEYS ARE USED TO MOVE ABOUT THE *CALENDAR* ..TO WIT:::

⇦	previous day	⇨	next day
⇧	previous week	⇩	next week
SHIFT ⇧	previous month	SHIFT ⇩	next month
◇ ⇧	previous year	◇ ⇩	next year
□ ⇦	previous active day	□ ⇨	next active day

3. IF THE *CALENDAR* IS CALLED WHILE YOU ARE IN THE *DIARY*, ALL DATES WITH DATA WILL SHOW A LITTLE ARROW NEXT TO THE DATE; (ACTIVE DAY), AND AS SUCH CAN EASILY BE CALLED TO THE SCREEN WITH *ESCAPE*. OTHER ACTIVE DAYS ARE EASILY REACHED WITH ARROWS OR SEE *CURSOR* MENU FROM *DIARY*; THE COLUMN ON THE RIGHT.
4. MORE SOPHISTICATED USE OF THE CALENDAR IS SHOWN IN MANUAL B.

◆◆◆

FORMATTING by mike fink

JUSTIFY SHOULD ONLY BE USED WHEN TYPING FONT CODES THAT DO NOT CHANGE THE WIDTH OF THE WORD!

JUSTIFY HAS TO BE REQUESTED IN THE THE OPTIONS PAGE **BEFORE** YOU TYPE THE TEXT. IT DOES NOT TAKE INTO ACCOUNT THE DIFFERENT SPACING OF THE WORDS THAT HAVE CODES THAT CHANGE THE SPACE *THEY USE*. THE ONLY CODES THAT ARE USABLE BY *JUSTIFY*, ARE THOSE WHOSE SPACE REQUIREMENTS DO NOT CHANGE WHEN THE CODE IS APPLIED; IE; BOLD, ITALICS, SUPER AND SUB SCRIPTS.

CONDENSED AND ENLARGED, OR ANY MULTIPLE CODE USE, REQUIRES MANUAL ADJUSTMENT. I HAVE FOUND, THAT FOR ME ,IT IS EASIER TO NOT USE THE *JUSTIFY*, IF I AM USING CODES THAT CHANGE THE WORD WIDTH.

THE FIRST STEP NOW, IS TO GO TO THE PANEL AND CHANGE 80 IN PAGE MAP TO 40. I THEN CHOOSE THE PAGE WIDTH, (FROM THE *LAYOUT* MENU) USUALLY A TOTAL OF 80, WITH TWO COLUMNS, A and B, WHERE A=72 WIDE and B=8 WIDE. I THEN MOVE THE COLUMN ARROW TO JUST BEFORE B (USING ■ -->).IT IS NOW EASY TO END THE NORMAL LINES ALL AT THE SAME RIGHT COLUMN (72), AND ADJUST THE OTHER LINES BY COUNTING THE FEWER OR EXTRA SPACES YOU NEED, (MINUS THE HIGHLITE SPACES).

IF ANY LINE CONTAINS MORE THAN 80 CONDENSED CHARACTERS, IT WILL PRINT AS SHOWN IN THE NEXT LINE.....

1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890

..10...20....30...40....50...60....70...80...

TO GET MORE THAN 80 CHARACTERS ON A LINE, YOU WOULD HAVE TO MOVE THE COLUMN ARROW FURTHER TO THE RIGHT. TO SEE MORE OF THE SCREEN YOU CAN ELIMINATE THE PAGE MAP COMPLETELY. OUR INITIAL ARRANGEMENT ALLOWS US TO PRINT 72 NORMAL CHARACTERS ON A LINE AND STILL HAVE A NICE LEFT AND RIGHT MARGIN.

IF YOU WISH TO SEE 7 LINES OF TYPING ON THE SCREEN, INSTEAD OF 6,YOU CAN CHANGE BORDERS ON THE OPTIONS PAGE FROM Y TO N.

YOU CAN USE ITALICS AND BOLD AT THE SAME TIME ON A WORD AND STILL USE JUSTIFY.

THIS PAGE WAS TYPED WITH THE FOLLOWING MODIFICATIONS TO THE OPTIONS PAGE:::::::::Borders N; PageLength 0; Margins: top-0; header-0; footer-0; bottom-3; left-5

SOMETIMES WHEN THE PRINT-OUT GOES AWRY, YOU CAN FINE TUNE IT WITH THE INSERTION OF CONDENSED SPACES!!

NONE OF THESE THINGS ARE MENTIONED OR DISCUSSED IN CAMBRIDGE'S MANUAL!!!

```
  the manager resume PipeDream List Functions'
CHOOSE(list) returns an element from "list", using the
first element as an index into the remaining elements.
eg. CHOOSE(3, 4, 5, 6) is 6.
COUNT(list) is the number of non-blank slots in "list".
MAX(list) is item with max. value of slots in "list".
MIN(list) is item with min. value of slots in "list".
SUM(list) is the the sum of the items in "list".FOR MORE INFORMATION:
 other Info entries


 the Info topic


 topic entries  browse
  the manager resume PipeDream Slot Functions'
COL returns the column number in which it is evaluated.
INDEX(column,row) returns the value of the slot
referenced by "column" and "row".
LOOKUP(key,range1,range2) returns the value in "range2"
corresponding to the position the key occurs in "range1".
Wildcards may be used in "key". If no match = "Lookup".
ROW returns the row number in which it is evaluated.FOR MORE INFORMATION:
 other Info entries


 the Info topic


 topic entries  browse
  the manager resume PipeDream Integer & Date Functions'
ABS(n) returns the absolute value of "n".
DAY(date) returns the day number in "date".
MONTH(date) returns the month number in "date".
PI returns the value 3.141592653.
SGN(n) returns -1, 0, 1 depending on the sign of "n".
SQR(n) returns the square root of "n".
YEAR(date) returns the year number of "date".FOR MORE INFORMATION:
 other Info entries


 the Info topic


 topic entries  browse
```

SCREEN PRINTOUTS using CLI

the manager resume Index

All insertion and removal of cards must be done from
the INDEX. Do not remove any RAM card, or a ROM card
which is in use. A continuous tone asks for a ROM
card to be reinserted into its original slot.
A FAIL message requires the machine to be reset.FOR MORE INFORMATION:
other programs

topic entries browse
the manager resume Diary
FOR MORE INFORMATION:
other programs

topic entries browse

ROM

ROM cards are used to contain extra data or applications programs such as databases, communications program or spelling checkers.

The procedure for inserting a ROM card is very similar to that for inserting a RAM card. First turn the Z88 ON and enter the INDEX. Open the flap and push the card into a free slot. Close the flap. The Z88 will take note of the new card, check this by typing <>CARD from the INDEX.

To remove a ROM card the Z88 must once again be ON and you must be in INDEX. You must not have any suspended activities which are making use of the card. To check this look at the list of activities on the display and see if any of them have a number in the rightmost column. If they do, and this is the slot number which holds the card in question, then that activity must be killed (using <>KILL) before the ROM card is removed.

If you remove a card that is in use the Z88 will sound a warning when you close the flap and display the symbol CARD at the top right of the screen. You must then replace the card in the same slot that it came from and kill all remaining activities.

If you remove a card whilst you are not in the INDEX the Z88 will sound a warning when you close the flap and display the symbol INDEX at the top right of the screen. You must return the card to the original slot, close the flap and return to the INDEX. You will then be able to remove the card normally.

Do not remove ROM cards while the Z88 is switched OFF.

CAMBRIDGE
COMPUTER

Z88

Memory Cards

The Z88 uses three types of plug-in memory card, RAM, EPROM and ROM. RAM cards are for expanding the amount of immediately available memory. EPROMs are for long-term recording of important data. ROM cards are used for external applications and extra help text.

RAM

The Z88 has 32K of built in RAM (Random Access Memory) of which about 20K is free for use. This may be increased by adding extra RAM cards in the slots along the front. There are three slots, each of which may take upto 1 Megabyte of RAM although it is advisable to use slots 1 and 2 for RAM leaving slot 3 available for EPROM. This is because slot 3 is the only one which can be used to record data onto EPROM. Also RAM cards will consume more power in this slot than in slots 1 and 2 and therefore reduce battery life.

Inserting a RAM card

1) Make sure that the Z88 is switched ON and the INDEX is displayed.

2) Open the perspex flap at the front, the Z88 will give a short beep and the screen will go blank.

3) Push the RAM pack into the slot making sure that the label is facing outwards and is the correct way up. Make sure that the card is pushed in as far as it will go.

4) Close the flap. The Z88 will turn itself back on and re-display the INDEX. You can check that the card has been recognised by typing <>CARD.

If you remove a RAM pack from the Z88 any data held in it will be lost instantly. Do not remove a RAM card unless you must. If you do have to remove a RAM card, the Z88 will display 'FAIL' in the top right hand corner of the screen. You will have to perform a soft-reset on the Z88 and any suspended activities will be lost.

Using Extra RAM

When you insert a RAM card the extra memory space which it provides will be instantly available to activities such as Pipedream. However, files which are saved in RAM must be specifically directed either to the original internal memory or to the extra memory provided by the card. For example, if you insert a RAM card in slot 1, in order to cause it to be used for files you will need to alter the default device setting in the Z88's Panel utility.

To do this enter the Panel utility by typing

[P]

Then move the cursor to the default device and change the value to

:RAM.1

Any new activities which you start will then save their data in the new RAM card.

Existing activities will still save data files in the old RAM. To cause an existing activity to use the new RAM, go into it and then enter the filer by typing [F. Use the select device option to select the new RAM card and then return to the activity by pressing ESC.

If you have RAM cards in more than one slot you may wish to save files to each of them explicitly. To do this you should use the device name :RAM.1/ or :RAM.2/ when specifying the filename where the number refers to the slot in which the RAM card has been placed. The original memory of the Z88 can be referred to as :RAM.0 in all cases.

EPROM

EPROM cards can only be used in slot 3. They are designed to be used for long-term storage of important data or programs. Unlike RAM, EPROMs will retain information even when removed from the Z88. Thus, in addition to providing a means to make back-up copies of valuable data, EPROMs provide a convenient means for transferring data between Z88s.

One important fact to note about EPROMs is that data cannot be changed once it is recorded into them. If you record a file onto EPROM and then make some changes you will be able to record a complete new copy of the file but this will use up more space within the EPROM. The space occupied by the original version will not become available again. When an EPROM becomes completely full in this way you will only be able to re-use it by erasing ALL the data which it contains. EPROMs cannot be partially erased.

EPROMs may be inserted or removed at any time, except when they are actually being read or written to. They do not consume much power except when being written to, at which time the Z88's screen will be switched off to conserve power.

Note – It is important to remove any EPROM card from the Z88 if you have to re-power a Z88 which has been left without power. Otherwise there is a small risk that data on the card may be corrupted. If the EPROM becomes corrupted it will need to be fully erased and all the data will be lost.

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North America

First Time Procedure For Your Z88

First Time Start Up:

Follow these instructions *only* when the Z88 has been without any power and must be fully reset and initialized. You should never have to follow these instructions more than once-- the first time you put batteries in the Z88. Thereafter, the Z88 provides plenty of backup internal power to let you change batteries without resetting the computer.

1. Install the batteries following the Battery Installation instructions below.
2. With a paper clip or fingernail file, press the small grey button on the left side of the Z88. It is in a small square hole next to the round hole for the AC adapter plug. The screen on the Z88 will stop fluttering and sparkling once the button has been pressed.
3. If the screen goes blank after pressing the button, turn the Z88 on by pressing both "**SHIFT**" keys at the same time.
4. Press the "□" key just to the left of the space bar, then press the "S" key. This brings up the CONTROL PANEL display.
5. Use the various arrow keys to move the small blinking cursor (black box) around in the panel until it is sitting on the "E" in the word "European". Then press the "A" key followed by the "**ENTER**" key.
6. Next, set the date and time by pressing the "□" key followed by the "T" key. To set the date, press the "→" key to move the cursor to the word "SET" and press the "**ENTER**" key. Type the date, but do **not** press the "ENTER" key when done. Instead, press the "↓" key to move to the time. Type in the time and press the "**ENTER**" key.
7. Press the "**ENTER**" key again to exit the Clock function.

AC Adapter Use:

Use a 6 volt adapter with a 300mA or 500mA current rating only. The polarity must be correct. The inside of the plug must be positive and the outside negative. Double check these three characteristics: voltage, current, and polarity, before connecting any AC Adapter to your Z88. This is especially true if you choose to use an adapter that lets you switch voltages or polarity.

Battery Installation:

Make sure you install all four AA batteries in the direction indicated. Insert one battery at each end of the tray. To insert the middle two, form them into a "V" shape with the legs in the tray and press down on the point of the "V" until the batteries seat themselves firmly. *Always* keep batteries in your Z88. This will protect your data even if you are using an AC adapter.

Using the American Dollar:

The spreadsheet application, PipeDream, assumes the British pound for currency. To change to the American dollar while in PipeDream, press the following keys in order: "<>" (above the left SHIFT key), "O" (oh), "**ENTER**" (press twelve times), "$", "→", "**DEL**", "**ESC**".

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12-15-88

Using CompuServe, America's Computer Utility:

Make sure that you set the Z88 up with the correct protocol for the baud rate you will be using. To do so, press the "□" key followed by the "S" key to get to the setup panel. In the right column are the communication parameters. Set the first two entries to the correct baud rate, set the third entry, Parity, to "S"pace and the last entry, Xon/Xoff, to "Y"es.

To dial using the terminal application, type the four letters "ATDT" followed by the phone number and press "ENTER". (If calling from a rotary dial phone, the first four keys to press are "ATDP".)

While communicating with Compuserve, there is a tendency for the information to scroll off the screen. To prevent this, once you are in the service, keep your left little finger resting on the "◇" key. With the index finger of the left hand, press "S" to Stop the screen from scrolling, and press the "Q" key to resume scrolling.

Until you are familiar with using the Z88 as a terminal, it is recommended that you always use the lowest baud rate your modem is capable of processing.

Using other Communication Services:

Most services are similar to Compuserve. Besides the above instructions, make sure you follow the procedures laid down by the particular provider you are communicating with.

If the Screen is Hard to Read:

On the left edge of your Z88 is a knob for brightening the screen and making the letters darker and more easy to see. Packaging the Z88 tends to rub the knob toward the lightest setting. To brighten the screen, adjust the knob until the letters can be read comfortably. The best setting is just before the entire screen darkens. This provides the best contrast.

Cambridge Z88 NewsNotes™

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Z88 Q and A

Can I use rechargeable batteries in my Z88?

This is not recommended for several reasons. First, they give a slightly low voltage even when fresh. They also have a very short life and close to the end of their power life they decay rapidly. Since they start with a low voltage, you can lose your data in RAM almost immediately after seeing the battery low indicators.

When I load a file into PipeDream only column A appears?

The file is plain text and not a PipeDream file. Reload the file and remember to set the plain text option to YES.

When I load a file into PipeDream it seems to have a lot of funny characters, especially the "%" character. Why?

You have attempted to load a regular PipeDream file as if it were plain text. The funny characters are the control information used by PipeDream to properly display the various text and formula options of the file. Reload the file with the plain text option set to NO. If this still doesn't help, you may have tried to load a Basic program or application data file which may not be plain text or PipeDream format.

The alarm is sounding and the keyboard does not respond. What do I do?

The Z88 is in a lockout state since an alarm has occurred while the computer was off. This is normal. To cancel it, switch the machine off and then on.

How do I get bold characters on the screen in BBC Basic?

The Basic VDU statement controls the screen. To turn bold on or off type:

VDU 1 66

Every time I try to set the date, the Z88 beeps at me. What do I do?

The initial date format of the Z88, as specified in the panel, is European. You probably haven't changed the date format to American. Go to the panel by typing □S. Then, move to the Date format field and type an "A". Press enter and you now have American formatted dates. Z88

zBASE, the Answer to a Programmer's Prayer

Z88 application developers have just been blessed with a new product called zBASE, a dBASE II clone designed to run on the Cambridge Z88.

zBASE is an excellent development tool that cleverly mirrors the PC version of dBASE II. It affords experienced dBASE users (even dBASE III+ experts) an opportunity to quickly, and easily, develop menu driven "dBASE-like" application programs for the Z88.

Although created differently, zBASE database files are structured much the same way as dBASE II or dBASE III+ .DBF files. Program files can be created in PipeDream as plain text files, or composed in your favorite ASCII editor on your PC and transferred to the Z88 via PCLink-II.

Most zBASE commands use the same syntax as their dBASE II counterparts and you will feel comfortable the first time you type a command. There are a few, small variations in zBASE, such as a variable naming limit of eight characters, and an "AT SAY" command, as opposed to the common "@ SAY" we have all come to rely on. However, if you run into any trouble, the documentation is helpful, well written, and includes printed sample programs to work you through most questions.

Most Z88 application developers will find that zBASE is a well written, familiar program which, in the hands of a capable programmer, can make the Z88 perform almost any data gathering or processing task. Any slight typing, or syntax adjustments you have to make, will be quickly forgotten the first time you take one of your favorite database applications on the road with you-- on your Z88! - *by James M. Kennedy* Z88

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Printing Multiple Copies of a Pipedream Document

One of the features that we have been asked for is the ability to print more than one copy of a PipeDream document without having to enter the print command multiple times. Few people have their own photocopier, so they let their computer do the work of copying!

PipeDream does not support printing multiple copies directly, but the power built into the Z88 makes this an easy feature to add. Use the INDEX to start a fresh copy of BBC Basic and enter the program in the listing exactly as shown.

Once you have entered the program, save it by typing: SAVE "PDCOPIES.BAS". Now you have a way of typing multiple copies of a PipeDream document easily. Once the document is ready to print, type the following two lines:

```
□B
CHAIN "PDCOPIES.BAS"
```

You will be asked the number of copies you want and that many of the current PipeDream document will be printed.

For Programmers only

If you can program in Basic, you might want to be aware of some interesting Z88 programming techniques used in this program.

```
10 REM PRINT THE CURRENT PIPEDREAM DOCUMENT
20 REM   MORE THAN ONCE, AT THE USER'S OPTION.
30 REM   (AL BAKER 8/25/88)
40 REM
50 CLS
60 PRINT "    Specify a number between 1 and 100."
70 PRINT
80 INPUT "How many times do you want to print the document? " NUM
90 IF INT(NUM)<>NUM THEN 50
100 IF NUM<1 THEN 50
110 IF NUM>100 THEN 50
120 CMD=OPENOUT("P1000101.CLI")
130 PRINT#CMD,"#P"
140 FOR I=1 TO NUM
150   PRINT#CMD,"|PO~E"
160 NEXT
170 CLOSE#CMD
180 *CLI .* P1000101.CLI
```

Appendix D of the manual describes CLI files. Within BBC Basic the *CLI statement immediately executes the remainder of the line it is on as a one-line CLI file. Line 180 of the program uses this to execute another CLI file named "P1000101.CLI".

The file "P1000101.CLI" is created in lines 120 through 170. Line 130 starts the CLI file with the command to jump back to PipeDream. The FOR-NEXT loop on lines 140 to 160 loops as many times as the user requested the PipeDream document to print. Inside, it places the CLI command to print the PipeDream document. This generates the proper number of print commands and the document is printed the correct number of times.

Reading Program Listings

Care should be taken in reading and using program listings published in *Z88 NewsNotes*. It is important to avoid using the wrong characters when entering a program into your own Z88.

In the listings, the "0" is a zero and the fatter "O" is the letter oh. Also, two other characters may be hard to find on the keyboard. In the above listing they are used on line 150. The "|" key is to the right of the "+" key, and the "~" key is to the right of the double quote key. Do not confuse it with the "-", or minus, key.

One last note, in BBC Basic all statements and functions must be typed in upper case only. Z88

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Registration has its Privileges

In addition to insuring prompt warranty repairs and service, completing and returning the Limited Warranty Registration Card that is packed with your Z88 also means that you will receive helpful user information and technical updates through *Z88 NewsNotes*. Each issue of *Z88 NewsNotes* is numbered beginning with Volume I, Number 1. If you are missing any issues, call 312-564-5512 to request back issues or verify that you are a registered owner. We continue to look forward to serving you! Z88

Cambridge Z88 NewsNotes™

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Using PipeDream to Write Basic Programs

Many people have asked how to use PipeDream to write BBC Basic programs. Basic has little ability to easily edit a program, while PipeDream is crammed with editing power.

The easiest way is to begin writing your Basic program in PipeDream as if it were a document. Place the two characters "*B" on the first line, the two characters ".J" on the second line, and start typing your program beginning on the third line.

When you are ready to run the program, save the program as text using "◇FS". Make sure you change the bottom NO to a YES, or the file will not be saved as text. Then, type "□F◇EX" followed by the same name you just used to save the program in PipeDream. This will load it into Basic. From this point on, remember to always go back to PipeDream to make changes.

If you have a program you wrote using BBC Basic, then you must copy it over to PipeDream. This is done by listing the program in a special way in Basic. In Basic, list the program by typing "LIST□+S" and pressing Enter. After it is listed, type "□-S". This saves the program as text in the file ":ram.-/s.sgn".

To retrieve the program in PipeDream, load the file ":ram.-/s.sgn" as text (make sure the bottom NO is changed to YES.) Once in PipeDream, the last line of the file will be added garbage, so remove it. The first line will be blank. Insert another blank line at the top of the file by going to row one and typing "◇N".

On these two blank lines place the "*B" and ".J" as described above and you are ready to use PipeDream to edit your Basic program. Z88

73 is NOT the Limit!

Several users have called to ask how they can write 80 column documents and see them on the Z88 screen. They understand that they can print very wide documents, but the Z88 is advertised as an 80 column screen, so why can't they see an 80 column document!

You got us! The ads are wrong. The Z88 doesn't have an 80 position wide screen. It's only 94 positions wide! (So, we understate the machine-- nobody's perfect.)

The 94 columns are always available in Basic or other applications. They aren't all available in PipeDream for two reasons. The first is unavoidable. Pipedream reserves 7 positions to the left for the line numbers. Thus, the maximum possible line width is 87 (94-7).

To get an 87 position line you need to do three things. First, turn the page map on the right off by going to the panel (□S) and setting the MAP field to NO. Then go back to PipeDream by pressing ESC.

Next, widen the document by adding two spreadsheet columns. Type ◇EAC◇EAC to add the two columns. Finally, move over the right margin 14 positions (from 73 to 87) by pressing the following two keys 14 times: □→

If you want to see *merely* 80 columns, then don't widen the screen the full 14 new positions. And we are sorry, but no, it is not possible to see more than the first 87 columns of a wider document-- but then, you can't do that on most desk top computers either. And it is certainly better than the 40 columns, or less, displayed on some "toy" computers. So we don't really feel so bad! Z88

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Printer Output from BBC Basic

Printing output on the printer in BBC Basic is almost as easy as printing on the screen. It is also as powerful as printing from PipeDream. You have full control of bold, italics, underlining and any other special printing options you may have set up using the Printer Editor described in Appendix E of your Z88 manual.

The listing shows a program that prints on the printer. Line 40 opens an output file to the printer device and assigns its channel number to the variable P. Every statement that sends information to the printer must specify this channel number.

```
 10 REM This program demonstrates printer output from BBC Basic
 20 :
 30 REM Open the printer output file
 40 P=OPENOUT ":PRT.0"
 50 :
 60 REM Turn on printer output (REQUIRED)
 70 PRINT#P,CHR$(5)+CHR$(91)
 80 :
 90 REM Output a message
100 PRINT#P,"This is text"
110 :
120 REM output a carriage return
130 PRINT#P,CHR$(13)+CHR$(10)
140 :
150 REM Switch to BOLD
160 PRINT#P,CHR$(5)+CHR$(66)
170 :
180 REM Output a number in BOLD
190 PRINT#P,"The answer is "+STR$(3*3.14159)
200 :
210 REM Output another carriage return
220 PRINT#P,CHR$(13)+CHR$(10)
230 :
240 REM Turn off bold
250 PRINT#P,CHR$(5)+CHR$(66)
260 :
270 REM Quit printing
280 PRINT#P,CHR$(5)+CHR$(93)
```

Two kinds of information can be sent to the printer using PRINT statements: control information, and output.

Control Information

Control information is sent out using the form **CHR$(n)+CHR$(m)**, where n and m are numbers.

End-of-line information is one example of control information. This is shown on lines 130 and 220 and is of the form **CHR$(13)+CHR$(10)**. Other control information is used to start and stop the printer or change format.

Printing will not work properly unless the printer is started before anything is sent to it and stopped after all printing is complete. This is shown in lines 70 and 280 of the listing.

All the printing formats available from PipeDream or defined with PrinterEd are also available. The sample program shows the use of BOLD printing. Bold is turned on at line 150 and switched back off again at line 240. Each format is turned on and of with the same number pairs. Here are the number pairs for each of the formatting options available:

Printer On:	5,91
Printer off:	5,93
Underline:	5,85
Bold:	5,66
Extended seq:	5,88
Italics:	5,73
Subscript:	5,76
Superscript:	5,83
Alternate font:	5,65

There are a few kinds of control information that use a single number. These are specified as **CHR$(n)**, where the number n is:

Form feed:	12
Bell:	7
Horizontal tab:	9
Vertical tab:	11

Output

The output data is what you are trying to print. It must always be text. Use the Basic function **STR$()** to convert any numeric values or formula answers to text before printing them. An example of this is show on line 190.

Also remember that unlike the normal print command to the screen, you can only have one text expression in the print statement. Connect multiple text expressions with a "+". Also, you have to use control information described above to force an end-of-line.

If you are a Basic programmer, you now have all the information you need to print sophisticated output reports from your Z88 using BBC Basic. Z88

Installation Notes

1) Make sure the transmit baud rate, set from the Z88's Panel utility ([]S), is set to 9600. Similarly, make sure that the Parity is set to None, and that Xon/Xoff is set to No. For instructions on how to examine and change these settings see the Z88 User Guide.

2) Make sure that your printer is off-line or switched off.

3) Plug the cable into the parallel connector at the back of your printer.

4) Connect the 9 way plug at the other end of the cable to your Z88's serial port.

5) Switch your printer on. The Z88 is now fully interfaced with the printer.

When the printer is no longer needed, just detach the cable from your Z88 and leave it plugged into the printer. If you ever accidentally interrupt printing, it can be resumed by reconnecting the cable to the Z88.

Using the Z88 with your printer

Full instructions for printing from the Z88's applications programs can be found in the User Guide. If your printer is an EPSON, or is EPSON compatible, you will be able to use the full range of printer functions, such as bold or underline, immediately. If it is not, you will have to enter the correct codes for your printer. These codes will be listed in the manual which accompanies your printer. The Z88 User Guide explains how to enter them in the section "The Printer Editor".

Printing from BASIC

The printer port is designated as a device named :PRT. All output routed to :PRT will be sent to the printer.

```
10 ch=OPENOUT(":PRT")
20 PRINT#ch,CHR$(5),"["
30 PRINT#ch,"This is some text"+CHR$(10)
40 PRINT#ch,STR$(PI)+CHR$(10)
50 PRINT#ch,CHR$(5),"]"
60 CLOSE#ch
```

The first thing you send must be the codes 5 and "[". These instruct the Z88 to enable the printer driver.

Output will be sent to the printer followed by a carriage return character (ASCII code 13), a line feed (ASCII code 10) must be added explicitly. Numeric values will need to be converted to text before they are printed.

Don't forget to turn off the printer driver by sending the codes 5 and "]" and then close the output device.

MORE ON UNDOCUMENTED FEATURES

By Phil Borman (0143)

Following the "undocumented features" letter from Ian Foot (0205) in the past issue of Z88 Eprom, I would like to add a few more entries to his VDU 1 list.

It is possible to send several VDU 1 commands together, by printing a string, the first character being the number of parameters as ASCII code. The second character can be used to switch ON or OFF with +-
ie VDU 1:PRINT "4+LTU" will set "small underlined capitals", or
VDU 1:PRINT "4+LTUTitle" will print the text "TITLE" in small underlined characters.

The mode is not cancelled automatically, so do VDU 1:PRINT "4-LUT" to get back to normal. You can send the same command as
VDU 1,ASC"4",ASC"+",ASC"L",ASC"U",ASC"T" or
VDU 1,52,43,76,85,84 or PRINT CHR$(1)"4+LUT" etc.

Three further VDU 1 commands are: "#", code 35, which creates a window on the Z88 screen, "I", code 73, which initialises a window, and "J", code 74, which justifies text. All take multiple parameters. "#" takes 5, with an optional 6th, "I" and "J" take one each.ie PRINT CHR$(1)"2JC" prints centre justified text. Use "JL" for left, "JR" for right, and "JO" for Justification off. If justification is left on, directly typed text prints each letter twice. PRINTed text is justified correctly.

Parameters for "#" are more complicated, and CLS or an "I" command is used to display the results. The first parameter is the ASCII channel number, ie 51 or ASC"3" for channel 3.

The next 4 parameters define the window position as follows: x position of top left corner+32, y position of top left corner+32, width of window+32, height of window+32, then optional extra parameter to define "border".

Use 0 for no border, or only send 5 parameters. Use 1 for a vertical line in the left and right margins, and use 3 for the lines plus a half character wide block at the top - useful for menu header text. See later. ie

VDU 1,ASC"7",ASC"#",ASC"1",32,32,32+80,32+8,0
and VDU 1,ASC"6",ASC"#",ASC"1",32,32,32+80,32+8
both define channel 1 window to be 80 characters wide, 8 high, at position 0,0 while
VDU 1,ASC"7",ASC"#",ASC"2",
32+81,32,32+12,32+8,3
defines channel 2 window to be 12 characters wide, 8 high, positioned one character to the right of window 1, with a line and block border. If you then print a 12 character string in reversed text in the top line of this window, you get a header similar to those used in the built in Z88 programs.

To use the new windows, or see the results, you need to Initialise them, which puts a cursor in them, and sends any PRINT commands to the current window. This is done with "I", ie PRINT CHR$(1)"2I2" will initialise window 2 defined above.

As a demonstration, type in the following program and run it, which will print a Z88 style header in the graphics area.

```
10 VDU 1, ASC"7", ASC"#", ASC"2", 32+81, 32,
32+12, 32+8, 3
20 VDU 1:PRINT "2I2":CLS

30 PRINT CHR$(1)"4+TLR Diary Date   "CHR$(1)
"4-TLR"CHR$(1)"2I1"
```

The "4-TLR" and "2I1" just reset everything again.

PROGRAM: TEXT IN BBC BASIC

By Neil Preedy (0137)

The following BASIC program demonstrates the use different text styles accessed using CHR$(1) commands:

```
 10 CLS
 20 RESTORE
 30 av%=0
 40 PRINT CHR$(1);CHR$(85);"TYPING
    TEST";CHR$(1);CHR$(85)
 50 PRINT
 60 READ num%
 70 FOR loop%=1 TO num%
 80   PRINT CHR$(1);CHR$(102);CHR$(1);
    CHR$(84);"PRESS ANY KEY TO CONTINUE";
    CHR$(1);CHR$(84);CHR$(1);CHR$(102)
 85   K$=GET$
 90   READ text$,w_num%
100   PRINT CHR$(1);CHR$(103);"Type in
      the following sentence:";
      CHR$(1);CHR$(103)
```

```
110    PRINT CHR$(1);CHR$(98);text$;
       CHR$(1);CHR$(98)
120    TIME=0
130    FOR key%=1 TO LEN(text$)
140      key$=GET$
150      IF key$=MID$(text$,key%,1)
        THEN PRINT key$; ELSE key%=key%-1
160    NEXT key%
170    t%=TIME
180    t%=60/(t%/100/w_num%)
190    av%=av%+t%
200    PRINT"Your speed was  ";CHR$(1);
       CHR$(82);t%;CHR$(1);CHR$(82);"w.p.m."
210  NEXT loop%
220  PRINT
225  av%=av%/num%
230  PRINTCHR$(1);CHR$(105);"Your average
     speed was ";CHR$(1);CHR$(105);
     av%;"w.p.m."
240  :
250  :
260  DATA 2
270  DATA THE QUICK BROWN FOX JUMPS
     OVER THE LAZY DOG,9
280  DATA THIS IS TYPED ON A CAMBRIDGE
     COMPUTER LTD Z88,9
```

SOFTWARE REVIEW - Z-TERM TERMINAL PACK

Z-Term is one of the first commercially available software packages for the Z88, and it really is a marvellous demonstration of how third-party software can be completely integrated into the Z88 system. I will talk about the features and facilities if offers later, but first I must describe what I mean by this software integration.

The package is supplied on a 32k ROM card - in fact an EPROM card with a label over the erasure hole. The Z88 does however acknowledge it to be a ROM on the CARD display (◇CARD from the Index). The ROM can be plugged into any of the Z88 expansion slots, and I chose slot two. Inserting the card should be done from the Index display, as is the case with any card.

When the machine is turned back on, nothing is obviously different. However, if you scroll to the bottom of the Application list on the left side of the Index, at the bottom you will find

Z-Term ◻Q

The package now behaves just as though it were one of the Z88's resident applications - you can have several copies suspended if you wish, and you can use the short-form ◻Q to activate them. If you remove the Z-Term ROM while you have Z-Term suspended, the Z88 immediately emits a continuous beep to tell you to replace the card.

The other refreshing thing about this software is the on-line Help and Menu facilities. Pressing the Help key at any time when using the software brings up a comprehensive help screen covering the command you were using at the time you pressed Help. This is just the way the Z88's resident Help facility was designed to work, but unfortunately the writers ran out of ROM space and could not implement it fully. This is why when you press Help from say, the Calculator, all you get is a blank page. In a similar way to PipeDream, the software can either be fully Menu driven, or you can use ◇ short cuts.

And so onto the facilities of the package. At the most general level, Z-term gives the Z88 two types of terminal - a scrolling terminal, as you would use for example with Telecom Gold, and a Viewdata terminal, which you might use with Prestel and the like. You select which of the two terminal types you require, plus a host of other options, from the Configure Menu.

From here you can select the baud rate and Parity/Bits, tell the software the type of modem you are using (either DUMB, HAYES compatible or MIRACLE Systems), and also edit a list of up to five autodial numbers, and five function key strings.

The last two facilities are very useful: If you are using an autodialling modem you can store up to five telephone numbers - your most regularly used services - and the modem will autodial them at the press of a single key.

Similarly, you can store a string of up to 32 characters on each of the function keys ◇A to ◇E. These might be customer ID's,other log-on sequences, or regularly used page numbers on a Viewdata service such as Prestel.

Once you have configured the package to suit your regular requirements, the software automatically saves a data file, called ZT.DAT, to the current device, and this data is loaded into the package each time you select it. The program also automatically sets the baud rate and parity on the Panel, but unfortunately does not reset the previous settings when you have finished.

When you are actually on-line, Z-Term offers several facilities to make life easier. In the scrolling terminal, you may record a call to RAM - simply pressing ◇FT sends anything that appears on the screen to your file. This may be loaded into PipeDream at a later date. Similarly, to save connection charges, you can prepare a message in PipeDream while off-line, save it as Plain Text, and then once you are on-line send the file using ◇FL.

I mainly used the software to access Prestel, and soon got used to the fact that the 24 line Viewdata scren is split into thirds. You can move about the screen to view either top, middle or bottom using ◇↑ and ◇↓. Graphics characters are not shown, instead an asterisk (*) is substituted where each graphic would normally appear. To make the selection of page numbers easier, rather than having to use Shift 8 and Shift 3 for * and #, the program redefines the TAB and £ keys to produce these characters.

While on-line to a Viewdata service you may save pages to RAM using ◇K - this saves pages to a file called PRESDATA.DAT which can be loaded into PipeDream for viewing.
If you know someone with X-MODEM file transfer software, Z-Term will send and receive files using this popular transfer protocol.

In use the software performed faultlessly. I evaluated the system using a Protek acoustic coupler, classed by Z-Term as a dumb modem.
The comprehensive nature of the commands available, together with the fact that it is fully menu-driven, make Z-term a joy to use.

The full Help facility is always there, and when compared to the Help built into the resident Z88 applications, is positively over-helpful! Z-Term comes supplied with a 26 page A5 manual, which includes a 'quickstart' first time user guide.

Two ommissions that spring to mind both regard the Viewdata terminal: It lacks the ablility to prepare mailboxes off-line, which is a shame. It also lacks any facility to download software from, for example, Micronet 800. Although there is nothing at the moment to download, with the formation of the Double 8 area for the Z88 I'm sure some will appear soon.

Don't be put off Z-Term by its price. Even though it may seem expensive compared to other software on cassette or disk, you must remember that the media - a 32k EPROM card - costs £20. This is unfortunately the price we Z88 users must pay for the convenience of solid-state software.

Thanks to Wordmongers Ltd for the loan of the review package.

PRODUCT: Z-TERM TERMINAL PACKAGE

SUPPLIER: WORDMONGERS LTD
21, Edison Road, Rabans Lane,
Aylesbury, Bucks. HP19 3TE
Tel: 0296 437878

PRICE: £49.95 (Members may claim their 10% Club discount on this price.)

MULTI-FILES FOR PRINTING

By Neil Preedy (0137)

A use for multi-documents is in printing out several documents without having to load them up each time.

Just type in the name of each document. Then save it as Plain Text under the name of say, "print.1" (See page 111 of the user guide.) Now load up the document "print" (miss out the .1). This automatically gives you the first document in the list. If you now print out the document, then all the other documents in the list (page 127 'Wait between pages') will be printed.

One thing that should be pointed out, is that the files will merge as one. If there is a gap at the bottom of the first file then the next file will place some of its text there. To overcome this every file should have a page break at the end (◇ ↓ ENTER ◇ EIP ENTER ↓ ◇Y). To make sure that all the page numbers are correct for each document the Start Page on the Options menu of every file should be set to the required number.

If a layout file is used then the file can be set up to incorporate this. Warning - to not forget to set the Panel timeout to zero, otherwise the printout will stop printing when the timeout is reached. This facility can also be used to print out several copies of the same document, just by copying them in a list the amount of times needed. It is advisable to use a power supply!

MICROSPACING IN PIPEDREAM

By Simon Phipps (0221)

The manual is unclear about this but I have established by experiment what extra information is required to make this work with Diablo 630 compatible printers. I will explain how the facility works and include the extra information.

To microspace justified text, it is necessary in the Printered to enter the codes used by your printer to change the amount by which the print-head is moved after each letter. During printing, PipeDream constructs codes between each word so that the text exactly fills the line. The code output is:

<Prefix> N <Suffix>

where <Prefix> is the code entered on the HMI Prefix field on page 2 of PrinterEd, <Suffix> is the code in the HMI Suffix field and N is the space value in 120ths of an inch. The HMI Offset value is added to N each time it is calculated.

To print a document,give the <>PM command and answer Y. You are now able to enter the default pitch in 120ths of an inch; this value is output to reverse the variable spacing commands. On a Diablo 630 printer, the coded I used were as follows:

HMI Prefix: ESC,US
HMI Suffix: (none)
HMI Offset: 1

PC Connections

We understand that many Z88 users also own and use the IBM PC and PC clones, the Mac and others. With so many hardware and software innovations and developments allowing the Z88 to interact with these machines, PIPELINE will run various Connection columns with the latest for you. If you have some special need or have successfully done something unique in this area please send it to Club Z88 PIPELINE'S Editor, Paul Bingham, P.O. Box 2034, Mesa, AZ 85214.

Uploading DIARY Files to the IBM PC

by Dr. Ken Wildman

Here are some instructions on how to upload DIARY files to an IBM PC (or compatible) for use with WORDSTAR. To upload a selected list from DIARY to a PC, you start in the DIARY and select BLOCKS from the menu. In the BLOCK's menu select DIAMOND BSE (or Search). Then enter a search string (i.e., the word you are searching for), press down the arrow to PRODUCE LIST and then type "y".

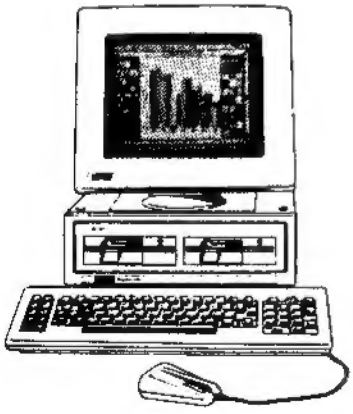
Before pressing ENTER, use the sq + S sequence to redirect output to a file in ram.- called :ram.-/S.sgn and *then* press ENTER. Now press sq - S to turn off redirection.

Next go to the INDEX and then enter PIPEDREAM. Load file :ram.-/s.sgn and then from PIPEDREAM set the column A width to 80 with DIAMOND W. Now set the right margin to "A", using SQUARE RIGHT ARROW. Next save newname, and upload to your PC or clone. Remember to erase any superfluous files, i.e., :ram.-/S.sgn and suspended activities. (Thanks for those instructions! Ken owns CW Associates, a Z88 dealer. - ed.)

Word Perfect and the Z88

by Rob Curry of Curry Computer, Glendale, Arizona

The Z88, with its built-in PIPEDREAM program consisting of a fully integrated word processor and spreadsheet, really makes it possible to do a lot of "heavy duty" computing almost anywhere. And, with PC-Link2 or Mac-Link, the Z88 allows you to harness the power of your IBM or Macintosh desktop and contain it, to a certain degree, in your two pound machine.



IBM compatible

Many people use Word Perfect 4.2 or the new 5.0 as their main word processor. Although the Z88 transfer programs technically work only with Wordstar, it is relatively simple to use the "Link" programs to transfer Word Perfect files in and out of your Z88.

To transfer your PIPEDREAM documents into Word Perfect follow these simple steps:

Z88 To IBM Transfers

Pipedream To Word Perfect 5.0

1. Save Pipedream as plain text.
2. Transfer file to IBM with PC-Link.
3. Convert to Wordstar format with PTW.exe on PC-Link disk.
4. Load WP50.
5. Retrieve document with Shift and F10.
6. Change left and right margins to .5" (1/2").
7. Use "page down" to re-align the document.

If you want to transfer a Word Perfect document into your Z88, you will need to SAVE the document as DOS text (Control + F5).

The advantages of "starting" a document on the Z88 and "finishing it" in a program like Word Perfect, are many. The dictionary and thesaurus in Word Perfect are excellent. And the formatting options are much better than those found on the Z88.

What the Z88 allows is the ability to work anywhere you want to. As an example, this article was begun on a Z88, ported to an Amstrad 1640 with PC-Link2, finished in Word Perfect 5.0, and then saved on a Mac disk in ASCII on the Amstrad with the use of an option board. This article was then formatted on a Macintosh and printed with a laser printer. It could then, with Mac-link, be downloaded back to the Z88. Not bad for a two pound portable! ◆

Z88 Programming

The Z88 CLI

by C. Fenn

The Z88 employs nifty user-defined macros called CLIs (for Command Line Interpreters). On the IBM these would be similar to creating batch files which allow you to configure your machine at start up and to execute programs sequentially.

CLIs can access all of the Z88's firmware. CLIs can be EXecuted manually from FILER or from the ALARM where they can wake up your Z88 and run programs at night, like chasing primes or playing poker hands to figure odds!

CLIs are designed to act on a series of keypresses as if following a script. This can appear quite spooky. Figure A shows some CLI command examples.

An added command such as .D100 causes a delay of 100 hundredths of a second, or 1 second.

CLIs will also EXecute from BASIC which allows much greater freedom of logic. Study Figure B. This conditionally lets you EXecute either "YES.CLI" or "NO.CLI" depending on the value of X. Examine line 420. "*CLI" informs BASIC that the rest of the line is a CLI file. "#F" directs the CLI to the FILER and "!EX" will EXecute a named CLI file. Here we've chosen "YES.CLI" but we've preceded it with ":*//" telling it to look through all devices and directories for the file "YES.CLI". The "~E" enters our file name at the EXecute prompt. (If "YES.CLI" was fixed in our directory named "PROGS" we could have used "*CLI#F!EXPROGS/YES.CLI~E".)

To make it easier, Cambridge thoughtfully included a keypress capture method: a RAM file called "K.SGN" (SGN meaning "System GeNerated"). K.SGN is always found in the ":RAM.-" directory. To use it you type SQUARE + K and then any successive keys you press will be recorded in the K.SGN file. This can be loaded into PIPEDREAM and edited into a CLI script. To close K.SGN type SQUARE - K. (NOTE: all :RAM.- files should be deleted after use as they can corrupt memory on RESET.) CLIs mimic all your captured keypresses and carry out the same operations as if someone were typing keys!

Figures C - G list a few CLIs I use. I keep them on my main DIR "MENU". You may customize them to suit you.

C brings me back to my "MENU". D clears the files in ":RAM.-", that is, S.SGN, K.SGN, etc. Most scripts can be horizontal or vertical, although some commands need to be the first on a new line.

E erases all of the files listed within it. This is the quickest way to free up usable RAM. Make sure your named files are different from your DIR names, as this will erase a directory, too, if it's empty. Notice that it takes you to OPTIONS in PIPEDREAM at the start and at the end so you can see how much memory was released.

F opens the RAM SPOOL file "S.SGN". It then CATALOGs all EPROM files, closes the RAM SPOOL, loads the file into PIPEDREAM and then erases anything left in ":RAM.-", provided "CLRSGN.CLI" is somewhere in RAM. Make sure you have nothing important ACTIVE in PIPEDREAM.

For a CLI file from ALARM you go to ALARM, set the time, date, etc. But in the REASON/COMMAND slot use ".*:*//FILENAME.CLI". The ".*" is used to EXecute a new CLI file. You also choose whether you need a BELL, set the ALARM TYPE to EXECUTE and then set how often and how many. G is the ALARM example. This awakens the Z88 every morning at 1:00 and EXecutes "CLRSGN.CLI" on the DIR "MENU" and makes sure that nothing gets left in ":RAM.-".

I hope this gives a little insight on how CLI files work. Perhaps next issue we can explore using them on a bigger scale! ◊

A

```
DIAMOND(CTRL)  key= !
SQUARE(ALT)    key= #
ENTER          key= ~E
SHIFT          key= ~S
ESC            key= ![
```

B

```
100 IF X>50 THEN 420 ELSE 440
~~~
420 *CLI #F!EX:*//YES.CLI~E
430 GOTO 450
440 *CLI #F!EX:*//NO.CLI~E
450 END
```

C

```
HOME.CLI
#F!SI!D~E!SIMENU~E!![
```

D

```
CLRSGN.CLI
#F
!ER:RAM.-//*~EN~E!![
```

E

```
SWEEP.CLI
#P
!O~U
.D400
#F
!ER:RAM.-//*~EN~E
!ER//ADDLF.BAS~EN~E
!ER//FINANCE.BAS~EN~E
!ER//CRYPT.BAS~EN~E
!ER//DIRS.CLI~EN~E
!ER//WP~EN~E
!ER//WP3COL~EN~E
!ER//BASES.BAS~EN~E
!ER//WIZ.BAS~EN~E
#P
!O
~U
```

F

```
CATEPROM.CLI
#P#F#+S!CE#-S#P!FL:*//S.SGN~D~D~DY~E
.*:*//CLRSGN.CLI
```

G

```
Here is one example (from ALARM):
--DATE--     ---TIME---     REASON/COMMAND
01/01/1989   01:00:00   .*MENU/CLRSGN.CLI
BELL     ALARM TYPE   REPEAT EVERY   No.OF TIMES
OFF       EXECUTE        1 DAY         FOREVER
```

BASIC Programs for Your Z88
by: C. Fenn

Here are some extended characters & BASIC screen control codes that you won't find in the User's Guide. I discovered these by sending VECTOR codes to my printer and noticed that my LCD screen had changed. After many hours of investigation this is what I came up with. This is in program form to stay orderly, but it's merely a collection of examples (see Figure 1).

I also have some Z88 BBC BASIC procedures that will come in handy. This is a CLI program file that can be EXECUTED from FILER (see Figure 2). It will merge into existing programs if the line numbers don't conflict.

Tips and Hints

Which ROM Version Do You Have?
by T. Woods

The OZ operating system and all firmware programs in the Z88 are contained on a single 128K EPROM. Earlier versions like 1.41 (and versions prior to that) did have a few bugs. Most of the new units being shipped are version 2.2 or laterwhich are much improved.

Would you like to check which ROM version your Cambridge Z88 has inside without opening your computer and voiding your warranty? Its very easy to check. From any Popdown or application program other than PIPEDREAM, press the HELP key and then press the left arrow key once. This should bring up the copyright page. A quick look at the top line of this page will give you the ROM version of your Z88.

Overcoming Gaps Between Paragraphs
by T. Woods

Have you ever reedited your PIPEDREAM text with right column justification "on" only to notice that at the end of some paragraphs huge gaps (spaces) are inserted between them? This is especially true with paragraphs where there are only a few words. This is simple enough to overcome. While on the last line of the paragraph, press SQUARE R (Reformat Paragraph). This command is very powerful when reediting and should not be overlooked by avid PIPEDREAM users.

```
40000REM Z88 BBC BASIC EXTENDED CHARACTERS
40010P.CHR$(1);CHR$(32):REM THREE DOTS
40020P.CHR$(1);CHR$(33):REM BELL SYMBOL
40030P.CHR$(1);CHR$(39):REM BACKWARDS APOSTROPHY
40040P.CHR$(1);CHR$(42):REM SQUARE
40050P.CHR$(1);CHR$(43):REM DIAMOND
40060P.CHR$(1);CHR$(45):REM SHIFT SYMBOL
40070P.CHR$(1);CHR$(48):REM TURNS OFF INPUT "?"
40080P.CHR$(1);CHR$(124):REM UPRIGHT SLASH
40090P.CHR$(1);CHR$(142):REM BLOCK
40100P.CHR$(1);CHR$(224):REM SPACE SYMBOL
40110P.CHR$(1);CHR$(225):REM ENTER SYMBOL
40120P.CHR$(1);CHR$(226):REM TAB SYMBOL
40130P.CHR$(1);CHR$(227):REM DELETE SYMBOL
40140P.CHR$(1);CHR$(228):REM ESC SYMBOL
40150P.CHR$(1);CHR$(229):REM MENU SYMBOL
40160P.CHR$(1);CHR$(230):REM INDEX SYMBOL
40170P.CHR$(1);CHR$(231):REM HELP SYMBOL
40180P.CHR$(1);CHR$(240):REM LEFT KEY ARROW
40190P.CHR$(1);CHR$(241):REM RIGHT KEY ARROW
40200P.CHR$(1);CHR$(242):REM DOWN KEY ARROW
40210P.CHR$(1);CHR$(243):REM UP KEY ARROW
40220P.CHR$(1);CHR$(244):REM THICK LEFT ARROW
40230P.CHR$(1);CHR$(245):REM THICK RIGHT ARROW
40240P.CHR$(1);CHR$(246):REM THICK DOWN ARROW
40250P.CHR$(1);CHR$(247):REM THICK UP ARROW
40260P.CHR$(1);CHR$(248):REM THIN LEFT ARROW
40270P.CHR$(1);CHR$(249):REM THIN RIGHT ARROW
40280P.CHR$(1);CHR$(250):REM THIN DOWN ARROW
```

Figure 1

```
*B
.J
49999REM CHRIS FENN'S Z88
TOOLBOX(2/88),TSUG of Las
Vegas NV.
50000DEFPROCBOLD
50010REM BOLD CHARACTERS
50020P.CHR$(1);"B";
50030ENDPROC
50100DEFPROCCURSOR
50110REM TOGGLES CURSOR
50120P.CHR$(1);"C";
50130ENDPROC
50200DEFPROCSLOW
50210REM SLOWS THE DISPLAY
50220P.CHR$(1);"D";
50230ENDPROC
50300DEFPROCFLASH
50310REM MAKES CHARACTERS
FLASH
50320P.CHR$(1);"F";
50330ENDPROC
50400DEFPROCBRIGHT
50410REM CHANGES INTENSITY
50420P.CHR$(1);"G";
50430ENDPROC
50500DEFPROCINVERT
50510REM INVERTS THE SCREEN
50520P.CHR$(1);"R";
50530ENDPROC
50600DEFPROCSCROLLDOWN
50610REM SCROLLS FROM TOP
DOWN 50620P.CHR$(1);"S";
50630ENDPROC
50700DEFPROCSMALL
50710REM PRINTS SMALLER
CHARACTERS
50720P.CHR$(1);"T";
50730ENDPROC
50800DEFPROCULINE
50810REM UNDERLINES
CHARACTERS
50820P.CHR$(1);"U";
50830ENDPROC
50900DEFPROCPAUSE(T)
50910LOCALLOOP
50920REM PAUSES ROUGHLY T
SECONDS
50930F.LOOP=1TO(T*725)
50940N.LOOP
50950ENDPROC
51000DEFPROCBEEP(BEEP)
51010REM BEEPS BEEP TIMES
51020F.LOOP=1TOBEEP
51030P.CHR$(7):PROCPAUSE(.5)
51040N.LOOP
51050ENDPROC
```

Figure 2